REMARKS

In the last Office Action, claims 1 and 2 were rejected under 35 USC 103(a) as being unpatentable over Hitchcock et al. ("Hitchcock") in view of Mitsuhashi et al. ("Mitsuhashi"). Claim 3 was deemed allowable over the prior art.

Applicants and applicants' council thank the Examiner for pointing out the allowable claim.

By this Response, claims 1 and 2 have been cancelled without prejudice or admission. New claims 4-7 have been added.

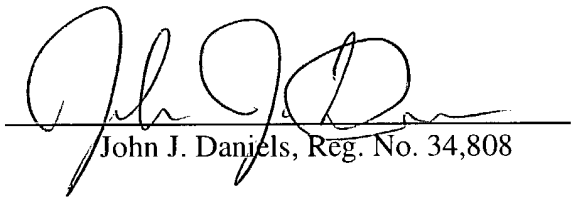
The present invention pertains to hardface alloys used, for example, on the shrouds of airfoil parts of gas turbine engines. As shown in Figure 2, two adjacent blades 10 of an assembled disc of a gas turbine engine are held in a housing member (not shown) such that surfaces 16 of each shroud section 12 contacts corresponding surfaces 16 of adjacent shrouds. These contact surfaces 16 are subjected to wearing forces during the operation of the gas turbine engine. As an assembled disc of blades rotates, the individual adjacent blades 10 may chatter against each other, causing wear to occur at the contact surfaces 16 of the shroud sections 12. This chattering results in constant hammering at the contact surfaces 16 of the interlocking blades 10. Excessive wear in the area of the contact surfaces 16 can have detrimental consequences on the operation of the gas turbine engine, and thus is an area of concern.

To combat the excessive wear in the area of the contact surfaces of the shrouds, it has been conventional practice to apply a hard facing material to the shroud in the location of the contact surfaces. Figure 1 shows a typical location for the application of a hard facing material 18. The hard facing material is applied to the shroud by, for example, manual tig welding or laser welding.

Applicants have discovered an alloy that can be useful for increasing the service life of a shroud for an airfoil part of a gas turbine engine. The alloy comprises a hardface material composition having improved oxidation and wear resistance at elevated temperature. In accordance with the present invention, the hardface material composition is comprised of an alloy having a relatively small lanthanum addition and a relatively large carbon content. Applicants have discoved that this relatively small lanthanum addition and relatively large carbon content results in a hardface material that when applied to the contact area of the shroud can improve the service life of the airfoil part. By improving the service life of the airfoil part, the costs of running and maintaining a gas turbine engine are decreased and the engine efficiency is improved. The prior art does not disclose or suggest forming a shroud for an airfoil part of a gas turbine engine as set forth in the newly presented claims. Accordingly, applicants respectfully submit that the present claims remaining in the application are allowable.

In view of the foregoing, favorable consideration and allowance of the claims of the application are most respectfully requested. The Examiner is invited to contact the undersigned by telephone if there are any questions or suggestions regarding the present application.

Respectfully submitted,



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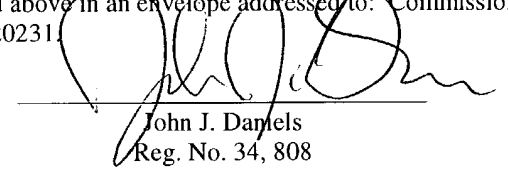
MAILING CERTIFICATE

Date of Deposit: December 15, 2003

I hereby certify that this correspondence is being deposited with the United States Postal Service as "First Class Mail" on the date indicated above in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231.



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Smooth Claims:

3. A hardface material composition having improved oxidation and wear resistance at elevated temperatures consisting essentially in weight percent of about:

	Percent
Carbon	0.08 max
Silicon	3.00 - 3.80
Phosphorus	0.03 max
Sulfur	0.03 max
Chromium	16.50 - 18.50
Molybdenum	27.00 - 30.00
Nickel + Iron	3.00 max
Nitrogen	0.07 max
Oxygen	0.05 max
Lanthanum	0.02 - 0.12
Cobalt	remainder

4. A shroud for an airfoil part of a gas turbine engine, comprising: an interlocking section of a shroud for an airfoil part of a gas turbine engine; a contact area provided at an area of the interlocking section that come in contact with another part of the gas turbine engine, the contact area having a hardface surface, the hardface surface comprising a hardface material composition having improved oxidation and wear resistance at elevated temperature, the hardface material composition being comprised of an alloy having a relatively small lanthanum addition and a relatively large carbon content.

5. A shroud for an airfoil part of a gas turbine engine according to claim 4; wherein the hardface material composition comprises An alloy characterized by improved oxidation and wear resistance at elevated temperatures consisting essentially in weight percent of about:

	Percent
Carbon	0.07 - 1.00
Manganese	1.00
Silicon	1.00
Chromium	26.00 - 30.00
Nickel	4.00 - 6.00

Tungsten	18.00 - 21.00
Boron	.005 - 0.100
Vanadium	0.75 - 1.25
Iron	3.00
Lanthanum	0.02 - 0.12
Cobalt	remainder

6. A shroud for an airfoil part of a gas turbine engine according to claim 4; wherein the hardface material composition comprises An alloy characterized by improved oxidation and wear resistance at elevated temperatures consisting essentially in weight percent of about:

	Percent
Carbon	0.07 - 1.00
Manganese	1.00
Silicon	1.00
Chromium	26.00 - 30.00
Nickel	4.00 - 6.00
Tungsten	18.00 - 21.00
Boron	.005 - 0.100
Vanadium	0.75 - 1.25
Iron	3.00
Lanthanum	0.02 – 0.12
Cobalt	remainder

7. A shroud for an airfoil part of a gas turbine engine according to claim 4; wherein the hardface material composition comprises An alloy characterized by improved oxidation and wear resistance at elevated temperatures consisting essentially in weight percent of about:

Carbon	0.08 max
Silicon	3.00 - 3.80
Phosphorus	0.03 max
Sulfur	0.03 max
Chromium	16.50 - 18.50
Molybdenum	27.00 - 30.00
Nickel + Iron	3.00 max
Nitrogen	0.07 max
Oxygen	0.05 max
Lanthanum	0.02 - 0.12

Cobalt	remainder